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ABSTRACT

In 1989, the Florida State Board of Community Colleges (SBCC), in conjunction with the Division of Vocational, Adult and Community Education (DVACE) of the State Board Department of Education, conducted a review of the state's dental assisting and dental hygiene programs. The two major sources of information for the review were public hearings and responses to a survey mailed to each public institution's program director. The study identified several areas of concern, including: (1) curricular inconsistency and lack of standards for converting clinical experience to semester hours among the colleges offering accredited programs; (2) lack of articulation to assist program graduates in entering degree completion programs; (3) outdated equipment and inadequate facilities; (4) need for in-service faculty education; (5) lack of order and consistency in state policies; (6) declines in applications; (7) the need for expanded student recruitment activities; (8) shortages of trained personnel; (9) underrepresentation of males and minorities in program enrollments; (10) the need for greater cooperation with the dental profession; and (11) the need for continuing education options. Drawing from study findings, a program review team developed 13 recommendations related to the development of program approval criteria, the creation of a center for health statistics, supplemental program funding, student financial aid, and student recruitment focused on underrepresented groups. Appendixes include list of persons attending hearings or submitting testimony, and a copy of the survey questionnaire. (JMC)

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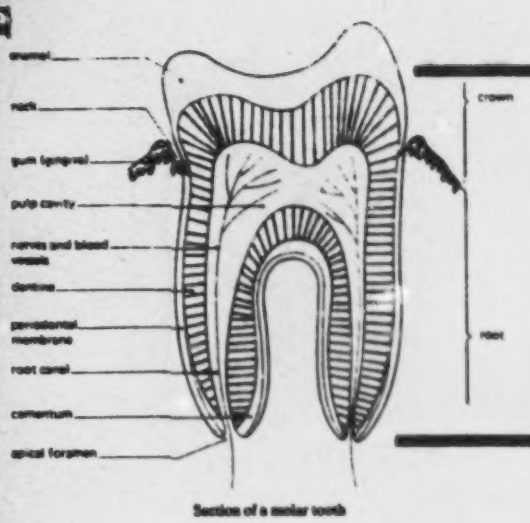
PROGRAM REVIEW REPORT



A Comprehensive Review of Dental Assisting and Dental Hygiene Programs in Community Colleges and Area Vocational-Technical Centers

FLORIDA STATE BOARD OF COMMUNITY COLLEGES

AND

DIVISION OF VOCATIONAL, ADULT AND COMMUNITY EDUCATION

FLORIDA DEPARTMENT OF EDUCATION

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APPROVED BY STATE BOARD OF COMMUNITY COLLEGES
July, 1989

APPROVED BY STATE BOARD OF VOCATIONAL EDUCATION
December, 1989

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A COMPREHENSIVE REVIEW OF DENTAL ASSISTING AND DENTAL HYGIENE PROGRAMS IN COMMUNITY COLLEGES AND AREA VOCATIONAL-TECHNICAL CENTERS

State Board of Community Colleges

Division of Vocational, Adult, and
Community Education

Spring 1989

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LIST OF RECOMMENDATIONS

Recommendation 1: The Board of Dentistry should develop criteria to approve all non-CDA accredited dental assisting programs. Such criteria should take into consideration CDA standards, which are part of approved curriculum frameworks. General studies liberal arts course work should not be reduced below that required by the Board.

Recommendation 2: The State Board of Community Colleges and the Division of Vocational, Adult and Community Education should support the core committee's efforts to develop an appropriate associate degree.

Recommendation 3: The SBCC should encourage existing dental hygiene programs to maintain a curricular scope and depth necessary to prepare dental hygienists who will perform traditionally assigned educational and preventive clinical services. CDA program accreditation should continue to be required for licensure. Community college program directors should include general education coursework equal to or greater than that required by specialized accreditation agency standards.

Recommendation 4: The SBCC should establish a task force to continue to study the length of dental hygiene programs. The task force should identify program pressures which might necessitate extending programs beyond the average two-year A.S. degree length.

The SBCC should also establish the necessary reporting procedures to resolve contradictory, conflicting, and incomparable data.

Recommendation 5: The SBCC and DVACE should request that the Articulation Coordinating Committee establish a task force, or assign to the appropriate existing committee the task to develop mechanisms that would expedite articulation within the Florida system for graduates of dental assisting and dental hygiene programs. Graduates should be encouraged, rather than discouraged, to achieve the degree beyond the credential they earned at the completion of their health studies.

Recommendation 6: The SBCC and DVACE should offer advice and guidance to institutions to help them plan for and obtain funds to update or expand clinical equipment, facilities, and supplies. The assistance could be in the form of special budget requests or it could be limited to consultation to help identify existing funding mechanisms and develop the rationale for using such mechanisms.

Recommendation 7: Consistent with the Postsecondary Education Planning Commission's recommendation that the Board of Dentistry should develop criteria to approve both on-the-job training and formal dental assisting programs and recommendation number one in this report, the Board of Dentistry should limit certification of dental assistants in certain expanded functions and certification in radiography to those who have completed a Board approved program(s). A phase-in period would help adjustment to the new standard. Rules for renewal of certification should be adopted, as well.

The Board of Dentistry should develop a reasonable avenue to expedite Florida certification of dental assistants who have received formal education or certification in other states.

Recommendation 8: The SBCC and DVACE should request that the legislature designate and fund a center for health statistics. The center should maintain and disseminate detailed current data on the employment status and characteristics of Florida dental hygienists.

Recommendation 9: The Board of Dentistry should convene a task force, representing all segments of the communities of interest, to reassess criteria and processes for dental hygiene licensure, and to recommend mechanisms that would expedite Florida licensure for dental hygienists moving from other states without compromising the standards of care.

Recommendation 10: The SBCC and DVACE, in cooperation with appropriate organizations, should seek and establish funds for a coordinated, comprehensive program to market careers in dental assisting and dental hygiene to a variety of potential students, and to publicize the availability of accredited educational programs in Florida. Dental assistants, dental hygienists, and dentists should participate in recruitment efforts. Decisions regarding conduct of the recruitment program should be overseen by a steering committee that equally represents all segments of the communities of interest.

Recommendation 11: The SBCC and DVACE should develop a legislative proposal which , in lieu of funding new programs, would provide supplemental funds to be distributed on a competitive basis to existing dental assisting and dental hygiene program willing to expand their enrollments or establish innovative curricula that would extend instruction to nontraditional students.

Recommendation 12: The SBCC and DVACE should develop a legislative proposal which would provide a loan program administered through the Department of Education, Financial Aid Division to subsidize living expenses for students to attend dental hygiene or dental assisting programs not within reasonable commuting distance. Loan forgiveness provisions could encourage employment in areas of Florida experiencing shortages of dental personnel.

Recommendation 13: The SBCC and DVACE should focus a substantial part of the coordinated recruitment program (recommendation 10) on demographic groups currently underrepresented in dental assisting and dental hygiene careers. Marketing efforts should include members of those groups targeted for increased enrollment in prominent, highly visible roles. Such individuals should serve on the steering committee that makes decisions regarding the program.

INTRODUCTION

The State Board of Community Colleges (SBCC) is required in Section 240.311(3)(c), Florida Statutes, to conduct periodic reviews of community college instructional programs. The program review process followed by the SBCC was developed in conjunction with community college representatives. It incorporates the five-year cycle review of vocational programs by the Division of Vocational, Adult and Community Education (DVACE), and it complements the five-year cycle review by the Board of Regents. The DVACE participated with the SBCC in the conduct of this review, since the area vocational-technical centers and the community colleges offer the same, similar, and related instructional programs.

Dentistry and Dental Practice

Dentists are primary care providers who assume responsibility for the oral health of those who seek dental care. Often, selected aspects of such care are delegated to dental hygienists and/or dental assistants, sometimes referred to collectively as dental auxiliaries.

Although some oral health services may be provided to patients within large clinics or hospitals, most dental treatment occurs within the solo or group practices of dentists. Nearly all positions for dental assistants and hygienists in Florida, therefore, are within these small businesses, owned by dentists.

The provisions of Chapter 466, Florida Statutes (Dentistry, Dental Hygiene, and Dental Laboratories) are carried out by the Board of Dentistry (Board). The Board promulgates rules such as Chapter 21G-12 Continuing Professional Education, and Chapter 21G-13 Disciplinary Action to further define the mandate of the law which governs the practice of dentistry in the State of Florida. The Board is an appointed body composed of seven licensed active dentists, two licensed active hygienists and two lay persons. The Council on Dental Hygiene is appointed by the Board's chairperson and is composed of one dental hygienist member of the Board who chairs the Council, one dental member of the Board, and three dental hygienists active in the State. The Council advises the Board on such matters as licensure, services and education. The Council on Dental Assisting is appointed by the Board's chairperson, and makes recommendations to the Board on matters related to dental assisting. Membership is composed of a licensed active dentist and three active dental assistants.

In order to provide oral health care in Florida, dentists and dental hygienists must be certified by the Board of Dentistry for licensure by the Department of Professional Regulation (Department). (25) To receive such licensure certification, dentists must apply to the Department and pass the Florida Board Dental Examination. The examination consists of a written test of laws and rules regulating dentistry, a clinical test and an oral diagnostic skills test. Applicants must have graduated from a school accrediated by the Commission on Dental Accrediation of the American Dental Association, or other nationally recognized accrediating agency, and have successfully completed the National

Board of Dental Examiner's dental examination within ten years of the date of graduation. Separate requirements must be met by graduates of dental programs not accredited by the American Dental Association. Licensure as a dental hygienist is obtained by passing the Florida Board Dental Hygiene Examination. Applicants must pass a written test of state laws and rules, and a clinical portion involving treating patients who meet specific criteria. Eligibility to sit for the state exam is contingent on completion of the National Board of Dental Hygiene Examination. Educational requirements for dentists are a minimal of two years of college followed by four years of dental school. The minimal standard for dental hygienists is two years of college-level work. In practice, the educational levels of most dentists and dental hygienists exceed the minimum. The state's only dental school is the College of Dentistry at the University of Florida. In Florida, dental hygiene education occurs in community colleges.

Employment as a traditional dental assistant requires neither licensure nor formal education. However, in order to provide services beyond those usually assigned to dental assistants ("expanded functions"), the Florida Board of Dentistry requires that the assistant obtain formal instruction, either in a postsecondary institution or through continuing education ("short courses"). In addition, certain tasks can be performed after on-the-job-training provided by a licensed dentist. (26) Further, dental assistants who perform radiology services, x-rays, are certified by the Florida Board of Dentistry upon completion of formal instruction. Educational programs for dental assistants are found in community colleges, vocational/technical schools, private colleges and proprietary schools. They range in length from several months to two years. The University of Florida offers the approved short course. In addition, the American Dental Assistants' Association sponsors a voluntary program, awarding certification to those who pass a national written examination. This credential ("Certified Dental Assistant," or CDA), however, is not required, either for employment or for approval to perform expanded functions.

As previously cited, legal provisions of the Dental Practice Act, and its interpretation through rules and regulations, govern the practice of dentistry in Florida. Services that may be performed by dental assistants--traditional or "expanded function"--and by dental hygienists are specified. All such patient care must be supervised or authorized by the dentist. A preponderance of services provided by dental hygienists and assistants are provided under direct or indirect supervision of the dentist. However, under general supervision, the dentist may authorize certain tasks such as removing calculus deposits and exposing radiographic films. Dental hygienists may provide certain services without supervision. Emergency tasks may be performed by trained dental hygienists and dental assistants without pre-examination by the dentist when a subsequent examination by the dentists will follow within three days. (27)

The dental assistant most often supplies a "second pair of hands" at chairside, and may gather data for diagnostic purposes, provide instruction to patients, or assume responsibility for selected tasks, or portions of tasks, that comprise dental treatment. Dental hygienists usually maintain a schedule of patients for preventive services, separate from those scheduled to see the dentist. A dental hygiene appointment routinely includes evaluation of oral health status, selection and provision of appropriate preventive measures, and instruction designed to maintain/enhance oral health. While both dental assistants and dental hygienists are supervised by the employing dentist, the dental hygienist's role typically

involves responsibility for larger segments of care, and decision-making at more complex levels within that realm of responsibility--hence, the educational and licensure requirements.

Separate professional organizations exist for dentists, dental assistants, and dental hygienists. In all three instances, the national association determines policy, and assists state associations (including Florida) in carrying out programs and policies consistent with those national priorities. Because of its vastly greater resources, the American Dental Association, and its constituent, the Florida Dental Association, have been the dominant influence on policies related to oral health, e.g., licensure, education, financing.

Need for this Review

Over the past several years, the need for a statewide review of Florida's dental assisting and dental hygiene educational programs has become apparent. Institutional administrators have been faced with changes that have brought increasing pressures upon these programs. Geographic distribution of current programs and the unbridled, differential growth of Florida's population have combined to introduce demands to establish additional programs, particularly in dental hygiene. Both numbers and characteristics of dental assisting and dental hygiene students have changed, influenced both by population demographics and by attractive opportunities within other segments of the Florida economy. The length, expense, and content of programs have elicited concern, as has the continued, limited minority participation.

The source of many recent pressures on the educational system seems clear. Within selected segments of the state's labor market, dentists have experienced difficulties hiring dental hygienists and/or formally-trained dental assistants. Frustration associated with these inadequate numbers of potential employees became the impetus for new demands on the educational system. Although the primary problem exists within the oral health care delivery system, educational institutions become involved because of their role in preparation of these highly specialized personnel. Given the complex factors that have combined to produce the problem, solutions also are likely to be complex, requiring the cooperation of many groups.

The following objectives were identified as needing to be addressed:

1. Assess the current situation in dental hygiene and dental assisting programs statewide in the areas of:

    a. Curriculum - What subjects are being taught? What standards are required for completion? Are programs of appropriate quality? Is there need for career ladder and articulation agreements? Are programs of appropriate length?

    b. Faculty - What credentials are needed for instructors? What instructor qualifications are desirable? What are the inservice training needs for instructors?

c. Standardization - What disparities exist between programs at different institutions? Are degrees and certificates for different institutions equivalent? Is there unwarranted duplication?

d. Equipment and facilities - Are equipment and facilities state-of-the-art? What would be needed to bring them up to that condition?

2. Determine in what areas dental hygiene and dental assisting persons need to be trained:

   a. What are the impacts on programs of national standards or criteria?

   b. What is the job demand for these occupations?

   c. Are minorities represented in enrollments and completions?

   d. Are licensure examination passing rates adequate?

3. Analyze the reasons behind enrollment, completion and placement rates:

   a. Do the programs lack visibility?

   b. What is the industry perception of graduates?

   c. What are the student perceptions of the program and the job market?

   d. What are the admissions procedures for program entry?

   e. Are the relationships between the industry and the institutions positive and productive?

4. Assess the implications of the new technology on the dental hygiene and dental assisting programs in the state:

   a. Are curriculum modifications needed? Are the curriculum frameworks and performance standards appropriate?

   b. Can existing instructional personnel meet the demands and what staff training is needed at what cost?

   c. What entrance requirements should be required for students, if any?

   d. What will the cost be to update the facilities? equipment? materials?

Process

The review incorporated several approaches in order to determine the current status of dental assisting and dental hygiene education in Florida. Then, modifications that would enhance future effectiveness and efficiency of these programs were considered and recommendations developed. Because nearly all graduates of both programs are employed in the offices of privately practicing dentists, the positions taken by organized dentistry within Florida were accorded particular attention during the review.

A program review team consisting of three consultants from outside Florida was utilized. The consultants were selected because of their breadth of experience and objectivity. The three--dentist, dental assistant, and dental hygienist--present substantial, varied experience in dental hygiene and assisting education, in organized dentistry, in other professional organizations, in licensure matters, and in higher education. (see appendix A.) Each has served as consultant to the specialized agency that accredits dental and dental-related programs, thereby acquiring knowledge of numerous potential avenues for enriching the education of dental assistants and dental hygienists in Florida.

Sources of information for the review included the following:

1. Oral testimony offered at public hearings;

2. Written testimony submitted by individuals and organizations during, or independent of, the public hearings;

3. A survey of dental assisting and dental hygiene program directors within Florida;

4. Telephone conversations and meetings with key persons, as well as formal presentations to selected groups, followed by discussion of issues/concerns;

5. Annual reports and other data gathered in Florida, and the United States, by various professional organizations and governmental agencies (see references);

6. Research published in peer-reviewed journals or as free-standing documents (see references);

7. Existing standards or recommendations for education programs published by state or national bodies.

The two major sources of information were public hearings and survey responses. The public hearings were held at four locations during April and May, 1988 to ensure that all interested educators and individuals from the dental community would have the opportunity to participate. The locations were St. Petersburg (April 15, 1988), Ft. Lauderdale (April 18, 1988), Tallahassee (May 17, 1988) and Jacksonville (May 18, 1988). Oral testimony was offered at these widely publicized all day meetings. A list of

participants can be found in appendix B. A good part of the conclusions and recommendations of this report were drawn from these public comments.

A cross section of input was secured through more than 100 participants involving area vocational-technical schools, and community college personnel, SBCC personnel, DVACE personnel, Florida Dental Association representatives and representatives from the dental business community.

The survey of dental assisting and dental hygiene programs was designed to verify the concerns and issues identified through the public hearings. The survey was sent to every public institution program director. Responses reflected all of the dental hygiene programs and most of the dental assisting programs. (see Table 1.) The questionnaire is included in appendix C.

The results of the survey did confirm the impressions gained during the public hearings. Especially interesting were responses relating to size of classes versus applicants, recruiting methods, and faculty credentials. Results are noted throughout this report, as appropriate.

Limitations

In spite of the effort expended, few conclusions can be documented with adequate, reliable data. Most often, support offered by proponents of a position was anecdotal, or from self-report surveys completed by respondents likely to be atypical of the larger population they presumably represented. Despite these limitations, which are delineated carefully throughout the report, a number of recommendations are made. Recommended actions are warranted by the existing data to benefit the interests of taxpayers who subsidize higher education in Florida and to protect dental consumers in the state.

The consultants recognized the long tradition of local control among public, postsecondary educational institutions within Florida, and none of the recommendations they provided were intended to usurp that authority. Still, the introduction of cooperative planning within the state could maximize the return on resources currently allocated to dental assisting and dental hygiene educational programs.

Findings

As previously stated, a complex set of factors surround the delivery of oral health care. Recent pressure on the state's educational system to upgrade the preparation of dental auxiliary personnel, yet supply additional dental hygienists and assistants, has produced involved problems. Consequently, solutions to these problems are equally involved. Solutions were suggested by the consulting team, educators, practitioners and their respective professional associations. This report represents a synthesis of input from more than 100 participants. In preparing the final report, the conclusions and recommendations provided do not necessarily represent the exclusive opinion of the consultants, the practitioners or the educators. The text reflects a combination of solutions

which take into consideration long term benefits such as accreditation standards, and practical considerations such as enhancing current educational programs to satisfy the immediate demand for additional dental auxiliary personnel.

The study of dental assisting and dental hygiene programs resulted in the identification of several areas of concern. These areas are: curriculum, articulation, equipment and facilities, faculty, state agencies/policies, admission, enrollment, placement and recruitment, equity, relations with the profession, and continuing education. Each is discussed in depth.

CURRICULUM

Educational programs in dental assisting and dental hygiene are accredited by the Commission on Dental Accreditation (CDA), of the American Dental Association (ADA). That body, which also monitors undergraduate and specialty dental education, as well as education in dental laboratory technology, is recognized by the Council on Postsecondary Accreditation and the United States Department of Education as the only specialized accrediting agency for dentistry.

Although Commission members represent all segments within the community of interest, 70 percent of its members must be dentists. Standing committees on dental assisting and dental hygiene education contain approximately equal members of dentists and of the appropriate auxiliary educators, appointed by the CDA chair, who must be a dentist. These standing committees examine and act upon detailed, on-site reviews of programs, conducted by consultants, usually on a seven-year cycle. A listing of Florida programs recognized by CDA appears in Table 1. During accreditation reviews of Florida programs, curricula are accorded careful attention; scope, depth, sequence, process, and outcomes are assessed, in light of Florida law, as well as the rules and regulations promulgated by the Florida Board of Dentistry.

Discussion in this section focuses upon curricular content of the two programs. Alternate structures for dental assisting and dental hygiene curricula will be considered in the section on Enrollment, Placement and Recruitment. Within these other potential structures, it is assumed that content and standards would conform to those that exist within the more traditional structure.

Dental Assisting

During the 1987-88 reporting period, 16 Florida institutions (15 public, 1 private) offered accredited educational programs, leading either to a postsecondary adult vocational non-college credit certificate, a college credit certificate or an Associate of Science degree in dental assisting. Although two public institutions and a number of additional private colleges and proprietary schools also offer dental assisting within the state, only these 16 (Table 1) have met the standards of the Commission on Dental Accreditation. (1)

CDA requires a curriculum of at least one academic year of full-time study, or the equivalent, including specified content in general studies, biomedical sciences, dental sciences, clinical sciences, and clinical practice. Programs also are expected to conform to the Florida curriculum framework (2) for dental assisting which includes CDA requirements, and detailed performance objectives are offered to guide educators. (3)

CDA standards require certain foundation knowledge, rather than focusing only on the performance of technical procedures. For example, CDA insists that students "demonstrate knowledge of radiation safety measures prior to making radiographs on patients;" that general studies (oral and written communication and psychology) be included "to prepare the student to work and communicate effectively with patients, other auxiliaries,

dental practitioners, and other health professionals;" and that minimum competence in clinical procedures must be demonstrated prior to clinical assignments with patients.

These CDA standards offer a reasonable baseline for training the dental assistant who will provide selected clinical services directly to patients. Further, inclusion of such minimal liberal arts or general education coursework seems congruent with the statements of dentists that they prefer assistants who are capable of communicating effectively with and influencing the dentally related behavior of patients. Finally, these courses may be the only portion of the curriculum that will transfer as college-level work.

This report deals primiarly with issues and concerns relating to public and private college, and vocational schools with CDA accrediated programs in dental assisting. Two public colleges, two private colleges and a number of proprietary schools (State Licensed Independent Postsecondary Vocational, Technical, Trade and Business Schools) operate programs without meeting the minimal CDA standards. Through public hearings held pursuant to this report, concerns were expressed that institutions often shorten the length of educational programs, condensing and/or eliminating content essential for accredited programs. All dental assisting programs should meet standards which assure the delivery of quality dental health care. The Board and program directors should explore reasonable avenues to expedite certification of dental assistants. CDA standards currently structure program length as a minimum, one academic year, or equivalent. If the equivalent could be structured to meet performance standards in less than one academic year, then students would benefit through timely entry into the workforce and state resources could be used more efficiently. This point is further discussed under Need for New Programs.

> **Recommendation 1:** The Board of Dentistry should develop criteria to approve all non-CDA accrediated dental assisting programs. Such criteria should take into consideration CDA standards, which are part of approved curriculum frameworks. General studies liberal arts course work should not be reduced below that required by the Board.

Within Florida, during the 1987-88 academic year, six vocational-technical schools operated by school boards, as well as nine community colleges, offered accredited educational programs in dental assisting. While all six vocational-technical school dental assisting programs are at the postsecondary adult vocational (p.s.a.v.), non college-credit level, and approximately one year in length, eight of the nine community colleges have allowed students the option of a college-credit certificate after one year, or an associate of science degree after two years of study.

This confusion in degree offerings, beyond even these dental related programs, resulted in the Legislature mandating in section 240.355 of the Florida Statutes that the state education agencies "level" all vocational programs so that offerings are consistent throughout the state, effective July 1, 1989. A joint community college and vocational school task force, known as the "core committee," recommended in early 1988 that dental assisting programs be "leveled" at the postsecondary adult vocational (p.s.a.v.) (non college-credit) level. The core committee further recommended an A.S. degree in dental

assisting technology. This A.S. degree would have included the p.s.a.v. competencies as well as business, office management, and liberal arts courses.

Those present at the public hearings often expressed concern that the new A.S. degree in Dental Assisting Technology would not relate to actual occupations in the field and that it would duplicate existing office management programs. As a result of this testimony, and concerns expressed by the Florida Dental Association, the core committee voted in April, 1989, to delete the Dental Assisting Technology program. The committee is encouraging, instead, the development of an appropriate Associate Degree Program in Health Services Management, or similar title. This degree program would provide an opportunity for students to combine specific health care training with course work in office management and other business related subjects. In addition, program directors are continuing to work with the Florida Dental Association to determine if a need exists for another level of dental auxiliary training.

> **Recommendation 2:** The State Board of Community Colleges and the Division of Vocational, Adult and Community Education should support the core committee's efforts to develop an appropriate associate degree.

Dental Hygiene

In order for dental hygienists to be licensed in Florida, they must have graduated from a program accredited by the Commission on Dental Accreditation (CDA). Currently, nine Florida programs, all in public community colleges, (Table 1) are so accredited. The Florida Dental Association has suggested that five additional institutions are "most likely to be considered for a new dental hygiene training faculty" (5) to meet needs for dental hygienists. (Table 1) Although recent FDA statements have omitted the designation of specific institutions, the Association has stated that, "those areas of the state where there is a need for new dental hygiene schools, ...the local dental society in cooperation with the junior/community college should proceed to start-up a program." (4)

Dental hygiene accreditation standards parallel, yet exceed, those of dental assisting. CDA requirements (6) exert substantial influence on curricular content and are reflected in the Florida curriculum framework. (7) CDA requires that dental hygiene educational programs be offered in not-for-profit institutions of higher education; that program length be at least two academic years of full-time study or its equivalent; and that the curriculum include general education, basic sciences, dental sciences, and dental hygiene science.

The scope and depth of coursework must be at college level and incorporate appropriate preparation for decision-making necessary for the provision of educational and clinical preventive services to patients. Because the dental hygienist's services and supervision levels permitted by state practice acts vary, CDA standards are considered the minimum and, in many states, the actual curriculum exceeds this minimum.

Of the 197 accredited dental hygiene programs existing in the United States, 111 are offered in community colleges, 59 in public universities, 16 in private colleges and

universities and 11 in public technical colleges. Associate degrees, diplomas and certificates are awarded in 85% (168) of the programs and the baccalaureate is awarded in 15% (29) of the programs. (8)(28) Although most programs award certificates or associate degrees, the majority of states in which dental hygiene educational programs are offered have a least one institution that awards the baccalaureate degree for dental hygiene coursework, following either basic preparation or degree completion programs. No such program exists in Florida, though it may be possible to enter one in an adjoining state (e.g., Alabama, Georgia) under the aegis of the Academic Common Market of the Southern Regional Education Board.

Nationally, the mean number of semester hours for dental health programs, including prerequisites, was 83 (N=158) with a range of 53-207 semester hours during the 1987-88 academic year. (28) Of the nearly 200 dental hygiene programs, about half of these require one year of college prior to admission to the dental hygiene program. (8) Among Florida's community colleges the mean number of semester hours was 84 (N=9) with a range of 60-98 according to the 1987-88 program inventory. (20) A phone survey in the Spring of 1989 reported a mean of 91 (N=9) with a range of 84-99. Curriculum length among Florida dental hygiene programs vary along two dimensions: the total number of semester hours exceeds the associate degree 60 semester hour standard; and, the total number of semester hours needed for graduation varies among institutions. As a result of these discrepancies, the Postsecondary Planning Commission recommended that the State Board of Community Colleges address curricular length in its statewide review of dental hygiene. (30) The following addresses this issue by looking at curriculum content and at credit hour calculations.

Florida dental hygiene programs require students to earn over 60 semester hours. This has been true for at least the past five years. CDA standards require that twelve different content areas be covered as part of the general education and basic science curriculum. Prerequisites such as algebra, chemistry and biology are required for enrollment in many of the basic science courses. There are nine content areas in dental sciences and seven content areas in dental hygiene which must be included in the curriculum. (4)

The increasing complex set of skills required of the dental hygienist posits a case for extensive preparation. The expansion of knowledge needed to perform traditional tasks has affected many licensed health professions, including dentistry, as well as dental hygiene. While the minimum predental requirement remains two years, in practice, most dental students are admitted with three or more years of undergraduate education. Likewise, dental schools have added summer sessions and residencies, so few dentists begin practice after the minimum six academic years. Given the expansion of knowledge related to the myriad of factors affecting dental hygiene patient care (e.g., medications, health history, prior experiences), it does not seem prudent to reduce curricular content, if dental hygienists are to continue providing traditional services.

Another factor in consideration of the appropriateness of current curricula (available for dental hygiene, but not for dental assisting) is performance on the National Board of Dental Hygiene National Examination, completed by students just prior to their graduation.

Eight program directors reported performance of graduates from 1985-88 on the National Board. Nearly all graduates passed--86 percent was the lowest reported, and most institutions approached 100 percent pass rates for most years. (Nationally, 8-10 percent of those taking the examination for the first time fail to achieve a passing score.)

Still, all but a few of the reported mean scores on this national, norm-referenced test ranged from 84 to 88. Since the observed "average" performance of candidates on this examination is set at 85, most Florida graduates fall about in the middle of the national distribution, i.e., they are prepared no worse than, but not appreciably better than, their peers in other parts of the country. This comparison to other, predominantly "two-year" graduates, primarily on knowledge needed to perform traditional dental hygiene functions, would seem to argue against drastic reductions in curricular content.

Many dentists have suggested that liberal arts or basic sciences coursework could be deleted, with minimal adverse effect. Current CDA accreditation standards would not permit such changes. In addition, it is the liberal arts requirements (psychology, sociology, communication) that would seem to offer knowledge most useful in helping student dental hygienists develop the "people skills" needed to influence patient behavior, a major responsibility of the profession since its creation. Finally, elimination of liberal arts coursework runs counter to current trends in higher education (9)(10) and denies students who continue their educations the credit hours most likely to transfer toward a baccalaureate.

Recommendation 3: The SBCC should encourage existing dental hygiene programs to maintain a curricular scope and depth necessary to prepare dental hygienists who will perform traditionally assigned educational and preventive clinical services. CDA program accreditation should continue to be required for licensure. Community college program directors should include general education coursework equal to or greater than that required by specialized accreditation agency standards.

Much discussion has focused on the number of semester hours currently included in programs preparing students to perform traditional dental hygiene functions; the Florida Dental Association has suggested that class hours should be reduced, so two years would be the maximum preparation. (4)

Supporting the case for a reduction in the number of credit hours or at least an examination of the issues involved, is the Commission on Dental Accreditation. In section 5.3 of the Accrediation Standards for Dental Hygiene Education Programs, colleges are reminded that they must include content in the four subject areas of general education, basic sciences, dental sciences and dental hygiene sciences. However, content identified in each subject may not necessarily constitute a separate course. (6) From an academic perspective, however, program directors are faced with a difficult if not impossible task of providing a thorough review of a subject area in some form short of the traditional course setting.

Another area of concern related to class hours is the lack of standards for community colleges to follow in converting clinical experience to semester hours. Students, depending

on which college they attend, earn one semester hour for either three or four hours of clinical experience. A second area impacting length variations is the lack of uniformity in counting required general education courses and in counting prerequisites for the advanced science courses. Perhaps, if only dental science and dental hygiene science courses were counted, variations between college programs would be reduced.

However, the awarding of an Associate of Science degree for the completion of approximately 20 to 30 additional semester hours is something which should be examined not only in dental health, but perhaps all health science curricula.

Recommendation 4: The SBCC should establish a task force to continue to study the length of dental hygiene programs. The task force should identify program pressures which might necessitate extending programs beyond the average two-year A.S. degree length.

The SBCC should also establish the necessary reporting procedures to resolve contradictory, conflicting, and incomparable data.

TABLE 1

INSTITUTIONS OFFERING ACCREDITED+ DENTAL ASSISTING (DA) AND DENTAL HYGIENE (DH) EDUCATIONAL PROGRAMS FLORIDA, 1987-88

Institution	DA Certificate Programs Accred. by CDA	DA AS Degree Programs Accred. by CDA	DH AS Degree Programs Accred. by CDA	FDA* Site "most likely"	Return of Survey
Brevard CC	x			x	
Broward CC	x	x			
Charlotte V-T	x				x
Daytona Beach CC	x	x		x	
Edison CC				x	
Florida CCJ	x	x	x		x
Gulf Coast CC	x			x	
Indian River CC	x	x	x		x
Lindsey Hopkins V-T	x				
Manatee Area V-T	x				x
Manatee CC				x	
Miami-Dade CC			x		x
Orlando V-T	x				
Palm Beach CC	x	x	x		x
Pensacola JC	x	x	x		x
Robt. Morgan V-T	x				x
Santa Fe CC	x	x	x		x
St. Petersburg JC			x		x
St. Petersburg V-T	x				x
Southern College	x				
Tallahassee CC			x		x
Valencia CC			x		x

* Locations suggested, by the Florida Dental Association, in 1987 as "most likely" locations for establishing new dental hygiene programs. Source: (5)

\+ Includes institutions listed as provisionally, conditionally, or fully approved by the Commission on Dental Accreditation, American Dental Association. Source: (4,8)

ARTICULATION

Currently, articulation for dental assisting and dental hygiene graduates in Florida is virtually nonexistent. That is, it is next-to-impossible for program graduates to enter degree completion programs, and to gain maximum academic credit for work already completed. This situation exists, in spite of the common course numbering system, and the desires of significant members of students.

It proves uncommonly difficult for dental assisting graduates who enter a dental hygiene program to receive automatic credit for equivalent work completed, e.g., radiology, dental materials; for vocationally certified dental assistants to pursue an associate degree in any field; or for A.S. graduates to pursue baccalaureate level study. In effect, students who have chosen dental assisting or dental hygiene must "back up and start over," nearly at square one, because many of the programs' credit hours will not apply to the degree level beyond the credential earned. While as A.S. degrees and vocational certificates are understood to be "terminal" degrees and credentials, the future educational needs and desires of these students must be addressed as well. In many allied health fields, students are returning to pursue higher education after a few years in practice.

This lack of articulation, in addition to producing extremely frustrated people, must limit the talent available to Florida's labor market, and discourage the entry of bright, ambitious students into the "dead end" careers of dental assisting and dental hygiene, as well as into other sub-baccalaureate health careers. In other parts of the country, mechanisms exist for such students to achieve higher educational levels through transfer, challenge examination, work experience credit, or other innovative strategies. These avenues for continuing higher education, with minimum penalty, should be available to Florida residents, as well.

> **Recommendation 5:** The SBCC and DVACE should request that the Articulation Coordinating Committee establish a task force, or assign to the appropriate existing committee the task to develop mechanisms that would expedite articulation within the Florida system for graduates of dental assisting and dental hygiene programs. Graduates should be encouraged, rather than discouraged, to achieve the degree beyond the credential they earned at the completion of their health studies.

EQUIPMENT AND FACILITIES

Dental assisting and dental hygiene programs require their parent institutions to provide and maintain expensive equipment, essential to students' learning. In addition, the presence of a dental hygiene program on campus adds a unique dimension--the higher education institution enters the "business" of providing health care services, within its own facility. While other programs educating health professionals usually send students to public or private hospitals for their practical, "hands-on" experience, CDA requirements tend to discourage such arrangements.

In Florida, most dental programs were established during the period extending from the mid-60's to the mid-70's. Clinical facilities, therefore, are approaching, or have passed, their twentieth "birthday". Although the actual life of dental equipment depends on a number of factors, including the maintenance it receives, programs will need to begin making plans for orderly replacement of equipment, to ensure that students' educations prepare them for practice; to minimize financial disruptions from these large purchases; and to accommodate the requirements of changing protocols for control of infectious diseases in the dental environment.

While some programs reported difficulties in allocating the increased funds necessary to meet more demanding, precise standards for infection control and disposal of wastes, other program directors have located existing sources of such funding. It is highly probable that standards for infection control and disposal of wastes within the dental care environment will continue to receive attention, to become more stringent, and (therefore) to consume more dollars. Few programs appear to have established long-range plans for equipment replacement and upgrading, or for continuing increases in operating budgets.

For programs that choose to expand enrollments and/or to offer evening coursework, additional demands will be placed on existing facilities and equipment, as well as on budgets for expendable supplies. For some administrators, this prospect of additional, substantial expense for the dental hygiene clinic has diminished the possibility of expanded enrollments, curricular choices, or clinical hours. It is assumed that the greater the extent of facility use, the sooner budgets must allow for equipment replacement (see discussion in Enrollment, Completion and Placement, and Recruitment Section).

Figures presented by the DVACE Institutional Program Reviews showed the 1985 statewide unmet needs for equipment as $190,240 for community college dental assisting and dental hygiene programs and $53,000 for district postsecondary school dental assisting programs. While these amounts do not indicate a need for a special budget request at this time, earlier comments about the age of existing equipment must be considered. Institutions may well be faced with expensive equipment needs as their equipment passes the age of usability. (24)

Recommendation 6: The SBCC and DVACE should offer advice and guidance to institutions to help them plan for and obtain funds to update or expand clinical equipment, facilities, and supplies. The assistance could be in the form of special budget requests or it could be limited to consultation to help identify existing funding mechanisms and develop the rationale for using such mechanisms.

FACULTY

CDA accreditation standards require that faculty in dental hygiene and assisting programs possess a degree beyond the degree being offered. Faculty teaching in an A.S. degree program are required to possess a Bachelor's degree. The requirement applies to the nucleus of full-time faculty. Since most Florida public institutions are accredited by CDA, faculty are meeting this requirement. Returns of the survey show that Florida faculty tend to exceed these requirements. Nearly half of the dental hygiene instructors possess Master's degrees. Every program has a dentist on faculty as well

Overall, faculty credentials appear not to elicit major concerns. Neither comments offered at the four hearings nor written testimony addressed the underlying qualifications of faculty, except indirectly--if employers are satisfied with the quality of graduates' preparation, program faculty must possess adequate skills and knowledge to provide quality teaching.

Of course, ongoing provisions must be made for inservice education, particularly for part-time instructors, to ensure a calibrated faculty that offers consistent, current information to students. This need for regular updating of part-time, clinical faculty is common within the health professions. It might be possible to encourage state-wide or regional workshops, sponsored by the Florida Association of Dental Assisting and Dental Hygiene Educators, with financial assistance from the Department of Education and/or individual institutions.

A few respondents to the program directors' questionnaire noted changes they'd like to see in faculty credentials, e.g., "ongoing enhancement of educational qualifications," "masters' degrees" (from a dental hygiene director), "bachelor's level" (a dental assisting program director). Still, current faculty appear to be committed to continued education, an obvious strength of the existing system. Accordingly, no recommendations are made.

STATE AGENCIES/POLICIES

Although some concerns were expressed regarding the role that state educational agencies play in the dental education programs--particularly surrounding the issue of leveling--most attention was given to matters that are the responsibility of the Department of Professional Regulation (DPR) and its Board of Dentistry. The Board of Dentistry, as created within the Department of Professional Regulation, is charged with the responsibility of carrying out Florida Statutes, Chapter 466 and those statutes which pertain to the Board and the Department in Chapter 455. It is the Board, through the Council on Dental Hygiene and Dental Assisting, which monitors such activities as education, preventive or therapeutic services, licensure discipline, and regulation.

Dental Assisting

The most employable dental assistants in Florida are those who hold credentials in expanded functions and certificates in radiography. This permits them to actually perform selected patient procedures. (11) Currently, dental assistants may achieve these credentials in one of two ways--by completing a formal educational program or by enrolling in the approved continuing education course, conducted over two weekends and followed by clinical evaluation by the employing dentist. Most often, this latter avenue is followed by dental assistants who present the required amount of experience, but have no formal education in the discipline; who are employed full-time in a dental office; and who seek to improve their salaries and status. Clearly, dual but unequal routes, with unequal evaluation methods, exist to the same employment credential. In response to this situation, the Postsecondary Education Planning Commission (PEPC) recommended recently that the Board of Dentistry develop criteria to approve both on the job training and formal dental assisting program. (30)

Even beyond credentialing problems, is the question of re-credentialing in expanded functions or renewal of a certificate of radiography. Board of Dentistry requirements do not exist for demonstration of continued competence, upgrading of skills, or any continued education. This is especially problematic where dental assistants are working with ionizing radiation.

Further complicating the credentialing issue is the concern that, even though Board existing rules provide for expanded function/radiography credentials, these rules are not always enforced, i.e., uncredentialed individuals currently provide restricted services in an unknown number of Florida dental offices. (The employing dentist has the responsibility to ensure that dental assistants have the appropriate credentials.) One cannot know whether or to what degree, these allegations, provided during the public hearings, are true. However, it seems unlikely that such statements would be made capriciously in a public forum.

In combination, these factors make it hardly a surprise that dental assisting programs have not enrolled capacity classes. (see Enrollment, Completion and Placement, and Recruitment section.) Further, this lack of consistency and minimal quality control would

seem to mitigate against Florida's ability to meet future educational and personnel needs for skilled dental assistants. If the skills can be taught to clinical competence in two weekends, why attend school for an entire academic year? If dental assistants are performing expanded function tasks, without the requisite education and without sanctions, why invest in any formal education? The Board of Dentistry and the educational agencies must address these issues.

Another area of concern for state agencies is accessing employer needs data for program planning. For example, although the DPR's annual report (11) indicates that 8700 individuals have met the requirements to be dental radiographers, this total appears to reflect all who have ever attained such certification, rather than the current number so employed. It is impossible to know how many of these 8700 actually are employed in Florida dental offices, or whether attrition of formally trained assistants has been comparable to that for assistants trained "on the job." This report makes a cogent argument in a succeeding section for the development of a statewide program which collects statistics for the health care profession. Data are missing particularly in the area of working conditions and retention of dental hygienists and assistants. Much of the data collected on a national scale is not comparable to state data. Without these data, state agencies and institutions cannot plan for future needs.

Even though data to confirm are unavailable, reports during the hearings show a need for more dental assistants. One source of these assistants should be new Florida residents. Unfortunately, however, should a dental assistant, certified in similar expanded functions in another state, relocate to Florida, no special mechanism exists to obtain Florida credentials, other than following one of the two existing avenues. Consequently, to obtain Florida radiography certification, the assistant must retake course work completed in the former state, often delaying employment until the weekend instruction can be completed. Although courses are offered each month, the waiting list for enrollment often is three months or more. In some instances, this restriction might serve to maintain Florida standards of quality. In others, however, the rule prevents dental assistants who already have met the higher standards required in their former state (e.g., California, Michigan) from promptly entering the Florida labor market. The restriction seems particularly onerous, and counterproductive, for graduates of dental assisting programs accredited by the Commission on Dental Accreditation, who have received education far exceeding that which can be included in two weekends, and who may have been employed, regularly performing expanded functions, for several years.

Clearly, there is much to be done in this area to bring order and consistency. The power to make changes, however, does not rest with the educational institutions, but with the state agencies.

Recommendation 7: Consistant with the Postsecondary Education Planning Commission's recommendation that the Board of Dentistry should develop criteria to approve both on-the-job training and formal dental assisting programs and recommendation number one in this report, the Board of Dentistry should limit certification of dental assistants in certain expanded functions and certification in radiography to those who have completed a

Board approved program(s). A phase-in period would help adjustment to the new standard. Rules for renewal of certification should be adopted, as well.

The Board of Dentistry should develop a reasonable avenue to expedite Florida certification of dental assistants who have received formal education or certification in other states.

Dental Hygiene

Because dental hygienists must be licensed in Florida, characterizing the current details of their employment would seem to be a relatively simple task. Unfortunately, estimates of the number of dental hygienists--much less their practice characteristics--are most unreliable. One source showed in 1986-87, 6694 dental hygienists held licenses in Florida. (11) Another source (12) suggests that there were 3974 licensed dental hygienists within the state in 1986. Still another source (4) reported, based on DPR statistics, that 5229 licensed dental hygienists were listed as living in Florida on June 1, 1988. Using the latter, however, and adding the 264 who passed the licensure examination in June (14), and assuming that all new licensees plan to reside in Florida, the number of dental hygienists within the state approaches 5500.

Estimates of employment are equally unreliable. In a survey of Florida-licensed dentists, conducted in 1985 but distributed in January 1987, only 20 percent reported that they did not employ at least one full or part-time dental hygienist. (13) (The survey achieved a 52 percent response among the 5175 dentists active in the state.) This calculation would mean that over 4100 dental hygiene positions were filled in Florida in 1985. More recently, the Florida Dental Association (4) estimated that, based on data collected nationally by the ADA, there "is a need for at least 4581 dental hygienists in the workforce." An earlier survey by the FDA, to which approximately one-third of the sample responded, concluded that 90 percent of dentists employ at least one part-time dental hygienist. (5)

Because of variations in methods state agencies use to gather and report data, discrepancies occur when comparisons are made between enrollment values reported by different agencies. For example, total enrollment values for Florida Dental Hygiene Programs, 1984-1988, as reported by the Council on Dental Education of the American Dental Association (Table 2), differ from values found in a similar table in the Postsecondary Education Planning Commission's report on dental education. Enrollment values for Florida Dental Assisting Programs (Table 3) vary with values found in Enrollment, Completions and Placement Rates, Dental Assisting Programs of this report. (Table 7).

Discrepancies can be attributed, in part, to the following reasons: enrollments are defined differently by agencies asking for, as well as supplying enrollment figures; enrollment report dates vary among agencies asking for enrollment figures; institutions supplying enrollment figures revise values throughout the reporting period. For example, where the Council on Dental Education reports enrollment for all public and private

accredited schools in Florida, the Division of Vocational, Adult and Community Education and the State Board of Community Colleges (SBCC) represent public vocational technical schools and community colleges only.

Regarding report dates, Level I data for the SBCC are completed in the early summer after revisions have been made throughout the academic year. Reports to the Council on Dental Education are made during the early part of the fall semester. Additionally, reports from colleges to the State Board of Community Colleges contain enrollments of full-time, part-time, fully admitted students and students enrolled with admission to a dental hygiene program pending. Where enrollment is reported to outside agencies based just on full time, fully admitted students, values vary considerably.

Planning for dental hygiene personnel needs proves difficult, given these sometimes incongruent estimates of the numbers of dental hygienists licensed and living in Florida; as well as the proportion practicing actively; the circumstances of their employment, e.g., number of hours per week; and the number with inactive licenses. Reliable state-wide and regional data, updated routinely at the time of licensure renewal, would seem essential for intelligent planning. The recent report of the Postsecondary Education Planning Commission (PEPC) (12) delineated this urgent need for information, for many health professions in the state.

The 1988 Legislature, in Chapter 88-394, created, but did not fund, a State Center for Health Statistics in the Department of Health and Rehabilitative Services (HRS). The Center is to collect data on "health resources, including physicians, dentists, nurses, and other health professionals, by specialty and type of practice..." The Center is also charged with the responsibility to coordinate the activities of state agencies, to develop written agreements with local, state, and federal agencies for the sharing of health-care-related data, and to provide technical assistance to those engaged in health planning activities.

The lack of appropriate and necessary data is a consistent problem identified throughout this and related reports. The development of a major source of health planning information, in Florida, is critical. The Legislature should be encouraged to provide the funds to HRS or the appropriate body to support the Center for Health Statistics or similar resource.

In discussing state policy issues, testimony frequently addressed both the pass rate and conduct of the Board of Dentistry sponsored clinical examination required for dental hygiene licensure. Approximately one-quarter (24%) of those who took the clinical examination during fiscal year 1986-87 failed (11). This value, however, is less than the proportion who failed examinations in dentistry (32 percent), nursing (RN, 37 percent), or respiratory care (76 percent). High failure rates appear to have been the norm in Florida in many licensed health occupations.

The Board of Dentistry reported that examiner training and grading was revised for the dental hygiene examination and, in June 1988, the overall failure rate was reduced to 12 percent on the written and 8% on the clinical examination. (14) That the failure rate declined after shortages of dental hygienists became apparent, appears to weaken

arguments that the DPR's policies and standards exist solely to protect the public welfare. The Department and the Board reported that examination validity and reliability are regarded as a public safeguard. Procedures are in place to assure objectivity in the clinical portion of the dental hygiene exam through the use of double blind examinations. Test items are analyzed statistically to determine atypical response patterns. Since licensure of dental hygienists is an important topic for aspiring practitioners, employers, educators and the public, all parties must take responsibility to continually monitor licensure examination. Concerns were expressed, however, during hearings that clinical examinations remain a concern to students and program directors. Though there was not a consensus, suggestions were made that the clinical portion should be discontinued unless exam procedures could be improved. Program directors felt improvements would provide a more realistic evaluation of the student's capabilities.

Hidden costs of the clinical exam to Florida residents are considerable. Examinees must pay a substantial fee each time the clinical examination is taken. In addition, travel costs for candidates and their patients must be borne. Timing of the examination means the unsuccessful candidates wait six months for retesting. During that time, graduates cannot be employed as dental hygienists, yet they must make some arrangement to maintain clinical skills, usually by enrolling again as students, and placing additional demands upon institutions for instruction.

Still other aspects of Board of Dentistry rules severely limit the availability of dental hygienists who may move into the state. Similar to the restraints faced by out-of-state dental assistants who are certified in expanded functions, an unknown number of individuals is lost to the labor market for extended periods, or entirely, because of Florida rules that the hygienist must have passed the National Board of Dental Hygiene Examination within the ten years immediately preceding Florida licensure. This would mean that a dental hygienist who had been practicing actively in a state requiring continuing education for relicensure would be ineligible for the Florida examination until the National Board had been retaken.

This stringent requirement can only decrease the availability of potential dental hygiene personnel. Ostensibly, rationale for the rule is to maintain standards of care for Florida residents. Other mechanisms, however, could ensure high standards, while permitting expedited licensure for those who present appropriate credentials, e.g., verification of continued education, employment, and ethical behavior in the prior state(s). Such avenues, while protecting the health of Florida residents, offer the possibility of meeting the state's need for dental hygienists at lower cost, more rapidly, than would expansion of in-state educational programs.

Recommendation 8: The SBCC and DVACE should request that the legislature designate and fund a center for health statistics. The center should maintain and disseminate detailed current data on the employment status and characteristics of Florida dental hygienists.

Recommendation 9: The Board of Dentistry should convene a task force, representing all segments of the communities of interest, to reassess criteria and processes for dental hygiene licensure, and to recommend mechanisms that would expedite Florida licensure for dental hygienists moving from other states without compromising the standards of care.

ADMISSION

Educational requirements for admission to both dental hygiene and dental assisting programs are minimal--high school graduation or its equivalent. In practice, however, many students present some college coursework prior to admission to the dental programs. Several reasons could explain this: 1) "discovering" the programs after initial enrollment in an institution; 2) returning to school after having elected college coursework, then having chosen to "stop out;" 3) enrolling, deliberately, in basic science or liberal arts coursework, to lighten each dental semester's course load, and/or to enhance the likelihood of admission to dental programs, by demonstrating an ability to handle college-level work.

Anecdotally, program directors have noted fewer applications and lower credentials among applicants in dental assisting and dental hygiene programs. The findings are not completely surprising, given demographic trends in the United States, particularly the smaller numbers of traditional college-aged young people. Additional factors, however, have been suggested as influencing academically able students to elect other career paths: 1) low salary scales in dental assisting and dental hygiene in Florida; 2) safety and health concerns, especially the fear of HIV infection; 3) lack of awareness of the programs and/or the careers; and 4) alternative careers available to women who might have traditionally chosen dental assisting or hygiene. Since no survey of potential applicants has been conducted, reasons for the perceived declines must remain educated assumptions.

Actual numbers of applications for admissions vary among programs. From data supplied by eight of the nine dental hygiene program directors, total applications for the most recent entering class were 1.5 times the number of first-year spaces available, and 1.6 times the number who actually enrolled. These values are slightly more favorable than the 1.3 national ratio for dental schools, (18), but less favorable than the 2.0 ratio reported by the College of Dentistry at the University of Florida. Individual ratios of reported applications to spaces ranged from 3:1 for one program, to nearly 1:1 for several programs. Varying months for initial matriculation of dental hygiene students--May, June, or August--seem unrelated to achievement of program capacity or to numbers of applications. Because only nine of the eighteen dental assisting program directors responded to the questionnaire, it is inappropriate to generalize about actual numbers of dental assisting applications.

These trends in Florida parallel those in the United States as a whole. Between 1976 and 1986, first year enrollments in dental assisting declined by nearly 19 percent and, in dental hygiene, by 13 percent. (8) Recently, the American Dental Association Councils on Dental Education and Dental Practice submitted a joint report for consideration by the 1988 ADA House of Delegates. (19) This report addresses concerns expressed by the 1987 delegates, regarding the lack of availability of dental assistants and dental hygienists. The report's findings will be addressed in some detail in the following section, which also contains recommendations related to admission, given its close association with recruitment and enrollment.

ENROLLMENT; COMPLETION AND PLACEMENT; RECRUITMENT

Enrollment

Total capacities, enrollments, and graduates for Florida dental assisting and dental hygiene programs during the past four academic years are displayed in Tables 2 and 3. Individual program capacities, with the number of years that first-year enrollment achieved those values, are displayed in Tables 4 and 5.

Between 1984-85 and 1987-88, dental hygiene actual enrollment tends to increase slightly, approximately 7%. (Table 2) While total first-year enrollment in dental hygiene has remained near or above 95 percent of capacity, maintaining this level has required that some programs enroll virtually all of those applicants who meet admission criteria. Over the past several years, the number of programs with first-year enrollment at capacity increased to four of the nine. Although three dental hygiene programs enrolled capacity first-year classes for all three years, four programs never achieved capacity for the academic years examined.

During these same four academic years, the number of accredited dental assisting programs (Table 3) increased from 14 to 16, and total first-year enrollment capacity from 421 to 499--a 19 percent increase over the period.

Actual first-year dental assisting enrollment declined from 1984-85 to 1987-88, as did the percent of capacity declining from 89 to 63 percent (Table 3). Displayed in Table 5 are the individual capacities of accredited dental assisting programs and the number of years those capacities were reached by actual first-year enrollments. No program was at capacity for all, and seven programs achieved capacity for none, of the three academic years.

As previously cited in this report, enrollment values vary between reporting agencies. There is a 15% decrease in dental assisting enrollments in Table 3 and a 18% decrease in Table 7. Variations in enrollment values are, however, in degree rather than direction. Conclusions and recommendations are the same in this report regardless of sources used.

Examination of enrollment data reveals several interesting facts. First, capacities of the institutions vary greatly, e.g., the first-year capacity at Miami-Dade is twice that at Valencia. Further, over the past several years, only three of 16 programs have achieved their maximum enrollment capacities.

Although the numbers of dental assisting programs and spaces have increased during the past four academic years, actual enrollment has declined, leaving increased capacity unfilled.

While first-year enrollment in dental hygiene has exceeded 95 percent of reported capacity, many programs indicated that class size could be increased, if qualified applicants were available. (Indeed, some programs have decreased their reported first-year enrollment capacity, when compared to values for ten years ago.) More able students would be likely

to result in improved graduation rates, thereby using existing educational resources more efficiently.

Also affecting enrollment is the geographic distribution of programs throughout the state. To some extent, it appears that programs most able to meet their enrollment capacities are those located in the geographical areas of recent population growth. Programs in other locations within the state, with less population, may admit most of those who apply.

These trends and issues relating to admission are considered in recommendations relating to the need for new programs.

Completion and Placement

Completion and placement values, like enrollment values in the preceeding section, vary in degree depending on the source used to report the data. The number of dental hygiene graduates tends to increase slightly between 1984 and 1986, then stablizes between 1987 and 1988 (Table 2). As indicated in Table 6, few community colleges were identified as below standard on completion rates on the most recent dental hygiene data reports.(20) The number of dental assisting graduates on the other hand, tends to decrease slightly as reported by in Table 3. Reports by DVACE in Table 7, show a more pronounced decline in completions among vocational technical schools. Relatively few associate degrees were awarded to dental assistants; during the period 1984-87, only 26 graduates were reported to have achieved this credential. (8)(15)(16)

Generally, over the past several academic years, accredited dental assisting and hygiene programs enrolled an average of 75 and 95 percent, respectively, of their first-year capacity, and graduated approximately 58 and 81 percent of that capacity (Tables 3, 2). Dental hygiene graduates have experienced difficulty achieving Florida licensure on first attempt, however (see discussion, State Agencies), so not all graduates enter the employment market immediately. Further, an unknown number of graduates leave the state to practice in other parts of the country. Anecdotal evidence was offered that graduates of some programs choose to seek licensure in Alabama or Georgia, rather than risk failure on the Florida examination. Given the burgeoning population of Florida, one would expect such outmigration to be balanced by inmigration of dental assistants and dental hygienists educated in other states.

Recruitment

All programs, according to the survey, conduct recruitment efforts, but the size, complexity, target groups, sponsorship, sophistication, and results have varied. Few programs report cooperative recruiting efforts with local dental, dental hygiene, and/or dental assisting associations. The Florida Dental Association has indicated that it plans to incorporate recruitment for dental auxiliary careers into its' ongoing effort focused on dentistry, the SELECT program. (4)

TABLE 2

TOTAL ENROLLMENT AND GRADUATES

FLORIDA DENTAL HYGIENE PROGRAMS, 1984-8*

	Academic Year			
	84-5	85-6	86-7	87-8
Accredited Programs, Number	8	8	8	9
Total First-Year Enrollment Capacity	247	247	247	255
Number of Programs at Capacity, First-Year Enrollment	3	3	4	3
Actual First-Year Enrollment	232	240	234	248
Percent of Capacity	94%	97%	95%	97%
Total Enrollment	448	456	449	476
Graduates	196	208	205	202
Percent of Capacity	79%	84%	83%	79%

* Sources: (8), (15), (16), (17), (29)

TABLE 3

TOTAL ENROLLMENT AND GRADUATES

FLORIDA DENTAL ASSISTING PROGRAMS, 1984-8*

	Academic Year			
	84-5	85-6	86-7	87-8
Accredited Programs, Number	14	16	16	16
Total Enrollment Capacity	421	481	488	499
Number of Programs at Capacity First-Year Enrollment	4	6	2	2
Actual Enrollment	376	366	360	315
Percent of Capacity	89%	76%	74%	63%
Total Enrollment	376	373	361	320
Graduates#	268	298	289	238
Percent of Capacity	64%	62%	59%	49%

* Sources: (8), (15), (16); 1987-8 data from (4), (29)

Of the total 855 graduates, 26 received associate degrees.

TABLE 4

FLORIDA DENTAL HYGIENE PROGRAMS

ACADEMIC YEARS, 1984-5, 1985-6, 1986-7*

School/Location	First-Year Capacity	# Years at this Number+
Florida CC/Jacksonville	22	3
Miami-Dade JC/Miami	49	0
Palm Beach JC/Lake Worth	40	0
Pensacola JC/Pensacola	30	1
Santa Fe/Gainesville	24	3
St. Petersburg JC/St. Petersburg	34	0
Tallahassee CC/Tallahassee	24	0
Valencia CC/Orlando	24	3
Indian River CC/Fort Pierce	8@	

* Sources: (8), (15), (16)

@ Indian River CC does not appear in these publications, because it was accreditation eligible, 1986ff.

+ This number represents, of these three academic years, the number of years the institution enrolled a first-year class that was at the capacity reported to ADA.

TABLE 5

FLORIDA DENTAL ASSISTING PROGRAMS
ACADEMIC YEARS, 1984-5, 1985-6, 1986-7*

School/Location	First-Year Capacity= Same	Most Recent	Number Years at Capacity+
Brevard CC/Cocoa		20~	1
Broward CC/Ft. Lauderdale	26		0
Charlotte VT/Port Charlotte		24~	1@
Daytona Beach CC/Daytona Beach		24~	1
Erwin VT/Tampa		(24)	
Florida CC/Jacksonville		22~	1
Gulf Coast CC/Panama City	22		2
Indian River CC/Ft. Pierce	16		0
Lindsey Hopkins Tech/Miami		51~	0
Manatee Area VT/Bradenton		30	1
Orlando VT Center/Orlando	48		0
Palm Beach CC/Lake Worth	24		0
Pasco-Hernando CC		(18)	
Pensacola JC/Pensacola		25~	2
Robt. Morgan Voc./Miami	30		0@
Santa Fe CC/Gainesville	40		0
St. Petersburg Voc./St. Petersburg		26	0
Southern College/Orlando	60		0

* Sources: (8), (15), (16); Numbers for institutions not listed in these sources are in parentheses; they came from the questionnaire completed by a program director, and from (4)

@ These institutions existed for only 2 of the 3 academic years. = When the capacity reported to ADA varied, the most recent capacity was recorded; ~ means it is higher than earlier ones.

TABLE 6

ACHIEVEMENT OF STANDARDS
DENTAL HYGIENE AND DENTAL ASSISTING PROGRAMS
IN COMMUNITY COLLEGES

Criterion Number	Criteria	# DA Insts. Not Meeting Standards (Max=9)	#DH Insts. Not Meeting Standards (Max=8)
1	Head count at least 15	2	0
2	Head count within 20% of prior two-year average	9	1
3	Completion Index at least 0.33	2	1
4	Completion Index not more than 0.2 below prior two-year average Completion Index	2	2
5	Placement Rate--at least 70% of completers employed in field or continuing education	1	1
6	FTE -- within 20% of prior two-year average	1	0
7	% change in direct cost/FTE (from second prior year) not more than 15% greater than state average change	6	3
8	Direct cost/FTE within 25% of state average+	5	2
9	Equipment cost/FTE within 25% of state average+	7	7
10	Student-Faculty Ratios within 25% of state average	1	2

* Source: (20)

+ Some of these values were "flagged" because they were low, as well as because they were high.

TABLE 7

ENROLLMENT, COMPLETIONS, AND PLACEMENT RATES

DENTAL ASSISTING PROGRAMS, 1984-7*

	1984-5	1985-6	1986-7
Number of Vocational Schools	5	6	6
ENROLLMENT			
Total	346	316	303
COMPLETIONS			
Total	191	113	76
PLACEMENT RATES			
Lowest	72%	71%	88
Highest	100%	100%	100
Mean	90%	90%	96
Number of Community Colleges	9	9	9
ENROLLMENT			
Total	385	326	292
COMPLETIONS			
Total	141	136	139
PLACEMENT RATES			
Lowest	78%	74%	50
Highest	100%	100%	100
Mean	94%	95%	86

* Source: (21)
+ These data were not available.

TABLE 8

RATES OF CHANGE IN AVERAGE MONTHLY EMPLOYED HOURS AND REAL WAGE RATES, DENTAL ASSISTANTS AND DENTAL HYGIENISTS, UNITED STATES AND SOUTH ATLANTIC REGION, 1983-7*

	Dental Assistants		Dental Hygienists	
	1983-5	1985-7	1983-5	1985-7
Average Monthly Employed Hours				
United States	-3.0%	+6.9%	+3.2%	+8.8%
South Atlantic Region	-4.8%	+8.3%	+2.2%	+9.9%
Average Real Wage Rates				
United States	-3.0%	+1.3%	+0.6%	+2.3%
South Atlantic Region	-1.0%	+2.4%	-0.3%	+2.0%

* Source: (19)

Given dentists' continuing needs for such personnel, such an expanded recruitment effort would seem a prudent investment of resources. Still, to succeed, the program must involve--and be managed by--all who have a stake in the outcome. Educators can ensure that correct, program-specific information is distributed, while practicing dental assistants and hygienists can provide role models for potential students. A steering committee, with representatives of education and practice, as well as dentistry, dental hygiene, and dental assisting, could oversee a coordinated, efficient recruitment effort. If no one group dominates the decision-making, the effort will be more balanced, and realistic.

Further, the more comprehensive and inclusive this marketing effort, and the wider participation in it, the more likely it will convey a positive image of dental careers; the more economical its costs are likely to be; the less it will duplicate effort; and the more likely it will achieve its goals of increasing enrollments in accredited dental assisting and dental hygiene programs. Recruitment must go beyond traditional dental auxiliary students--young white women--and include sincere efforts to reach older women and men, as well as ethnic minorities (see Equity section).

Recommendation 10: The SBCC and DVACE, in cooperation with appropriate organizations, should seek and establish funds for a coordinated, comprehensive program to market careers in dental assisting and dental hygiene to a variety of potential students, and to publicize the availability of accredited educational programs in Florida. Dental assistants, dental hygienists, and dentists should participate in recruitment efforts. Decisions regarding conduct of the recruitment program should be overseen by a steering committee that equally represents all segments of the communities of interest.

National and State Trends

In the United States as a whole, adequate numbers of personnel may not be available. Nationally, organized dentistry has directed increasing attention toward the problems of hiring dental assistants and, particularly, dental hygienists. A recent article in the ADA News (22) identified several possible sources of the personnel "crisis": 1) demand for employees has increased; 2) the "baby boom" is over, and smaller numbers comprise current cohorts of young people; 3) career expectations among women are changing; and 4) AIDS is discouraging entry into health careers.

A more detailed report to the ADA House of Delegates (19) elaborates on statistics, as well as factors influencing trends in dental personnel. During the decade 1976-86, data collected by the ADA indicate that the average total years of experience of dental hygienists increased by nearly 50 percent, to ten years (five years in the current position), while average weekly real wages (adjusted for inflation) decreased by 3.4 percent during the recession years 1978-82, then increased 3.5 percent from 1982-86. For dental assistants, total years of experience averaged over six years, with four in the current job; average weekly real wages declined by 4 percent (1978-82), then increased by 4.2 percent (1982-86). So, after ten years, dental assistants and dental hygienists, on average, present more

experience, but are paid only slightly more than they were in 1978. These national salary data might be interpreted to suggest that, over this period, increases in salaries of dental personnel have not kept pace with the remainder of the economy. This difference may be accentuated in a state, such as Florida, that has experienced exceptional economic growth.

Considering only the more recent, post-recession period (Table 8), ADA data provide some insights about the South Atlantic region (in which Florida is located), in relation to the entire United Sates. The rate of increase in monthly employed hours for dental assistants and dental hygienists in the South Atlantic region has exceeded the rate for the United States as a whole. Changes in real wage rates, however, show a different pattern. Rates for dental assistants in the South Atlantic region were more favorable than the national average, while rates for dental hygienists were somewhat less favorable. Although these data would appear to corroborate anecdotal reports of recent increases in Florida salaries, they can not be extrapolated to the state from the region as a whole. Of course, looking at the rate of change does not consider the absolute salaries of these personnel. It may be that, because wages of dental assistants were uncommonly low, the rate of increase was greater. In addition, absolute salaries may not compare favorably with other career opportunities available in an expanding economy. Until reliable data are gathered, specific to Florida (see Admission section), it will be impossible to conclude whether salaries are a major factor in the dental employment equation within the state.

Basic economic principles, however, would suggest that when a commodity becomes more scarce, prices paid will rise. The ADA report (19) noted:

> Those regions with large increases in hours of employment and relatively small increases in real wages could potentially face shortages. Additionally, if the reserve supply of individuals is depleted, higher wages must be paid to attract staff to new or vacant jobs. (19)

The continued, rapid growth of Florida's population, combined with dental classes at the University of Florida that will remain at their current level (12) will mean continued, increased demand for dental assistants and dental hygienists. In some parts of the state, as well as for some individual dentists, major problems have existed in hiring appropriately qualified dental assistants, and especially dental hygienists. In the absence of reliable data, anecdotal information has been used to suggest that conditions of dental assisting and dental hygiene employment in Florida are outstanding, given the modest educational investment. If the perceptions of existing--and potential--dental assistants and dental hygienists conformed to this positive view, one would expect minimal difficulty in attracting students and in retaining current personnel in the labor market.

Need for New Programs

Because reliable data are not available to permit precise definition of needs for dental health manpower, it is impossible to analyze the true dimensions of the current problem, much less make predictions for future needs. What has become clear through this review, however, is that the employers in this field do perceive a need for additional trained personnel.

Many facets of this report lead to the conclusion that a response to the employer needs is appropriate. As mentioned earlier, there has been a decline in dental assisting and a slight increase in hygiene enrollments and applicants; enrollments and applicants seem to be concentrated in high population areas in the state; and Florida has continued population growth and continued growth in the number of dentists.

While these factors support action to encourage training of additional dental assistants and hygienists, they do not provide adequate evidence to begin new programs.

Certainly, individual institutions should continue to assess local program needs. Institutions may be able to access local labor market data that are convincing enough to support new programs. At the state level, as previously mentioned, data bases that can provide institutions with the necessary planning information must be developed.

While state-level support for new programs is not warranted at this time, several efforts to increase production of dental assistants and hygienists can be suggested.

The least costly solution would be altering the rules governing entry into dental hygiene practice in Florida. (see Enrollment; Completion and Placement; Recruitment section.) Two other possible solutions are offered--expanding existing programs in high-demand areas and offering incentives for students in high-demand areas to fill available educational spaces in low-demand locales. Both options would require allocation of state funds.

To some extent, expansion of existing enrollment capacities already has begun. One dental hygiene program has created an evening "track," permitting those who are employed during the day (including dental assistants) to attend. Several other programs are planning to, or considering whether they should, increase their enrollments, establish part-time options, or cooperate with institutions that do not have dental programs to maximize use of resources. Such arrangements are limited by the size and current demands upon laboratory/clinical facilities. In addition, the more heavily equipment is used, the sooner it will require replacement (see Equipment and Facilities section). If institutions were offered new financial resources to defray the attendant costs of expanding enrollments, more might be willing to do so.

Similarly, if potential students in high-demand areas with limited number of educational places were offered financial incentives to relocate temporarily to low-demand institutions, all available spaces might be filled. Such a program might work by offering loan funds to cover living expenses--the only "new" cost, since charges for tuition, fees, books, and instruments would be paid at the institution within commuting distance.

If, after students have been graduated, they remain employed for a specified period of time in an area within Florida that meets criteria as a high-demand (or personnel shortage) area, portions of the housing loan might be forgiven. If a graduate chooses to leave the state, or to practice in an area already well-supplied with dental personnel, the loan would be repaid, with interest. Such an incentive would encourage graduates to seek

employment in defined "shortage" areas, without the rigidity of restricting them to their home towns.

Given the high costs of allied health programs, and the likelihood that many of these disciplines will experience difficulties in attracting numbers of students sufficient to meet Florida's needs, such an assistance program could be expanded, as necessary, to other allied health professions. For that reason, and because a variety of institutions conceivably could participate, the student assistance program should be operated within the Florida Department of Education.

If, after a reasonable trial, over a period of time (not less than 5 years), these programs offering financial incentives to institutions and students do not alleviate--or at least, greatly improve--shortages of personnel, other avenues can be pursued. Assuming that adequate numbers of potential applicants exist, new programs could be encouraged, perhaps with start-up funding for facilities and equipment costs.

Recommendation 11: The SBCC and DVACE should develop a legislative proposal which, in lieu of funding new programs, would provide supplemental funds to be distributed on a competitive basis to existing dental assisting and dental hygiene programs willing to expand their enrollments or establish innovative curricula that would extend instruction to nontraditional students.

Recommendation 12: The SBCC and DVACE should develop a legislative proposal which would provide a loan program administered through the Department of Education, Financial Aid Division to subsidize living expenses for students to attend dental hygiene or dental assisting programs not within reasonable commuting distance. Loan forgiveness provisions could encourage employment in areas of Florida experiencing shortages of dental personnel.

EQUITY

Participation in dental assisting and dental hygiene education within Florida by those who are male or who belong to ethnic and racial minority groups have been at the token level. In the absence of data for employed dental assistants and dental hygienists (see State Agency/Policies section), one must assume that the patterns existing within educational institutions carry over into practice.

One state level assessment of dental hygiene program enrollments from 1981-82 through 1985-86 (12) found that the highest proportion of participation by minorities was as follows: 1) males, 1.9 percent, in 1981-82; 2) Blacks, 2.7 percent, in 1985-86; and 3) Hispanics, 10.8 percent, also in 1985-86. While participation by Blacks and Hispanics increased during the period, male enrollments remained at approximately one percent of the total.

The level of male dental hygiene enrollment contrasts with female enrollment in the College of Dentistry, University of Florida, which exceeded 29 percent in 1986-87. (12) One-fifth of the dental degrees awarded in Florida that academic year were to women. (12) Apparently, it has been more attractive for women to enroll in dental school, than for men to enroll in dental assisting or dental hygiene programs. One might speculate why this trend exists, e.g., more recruitment efforts directed toward women by dental schools; society's greater emphasis on women's entry into traditionally male professions; higher potential incomes to be achieved in dentistry. In the absence of data, however, reasons remain merely speculation.

University of Florida minority enrollments in the College of Dentistry have followed similar trends. During 1986-87, Blacks represented 6 percent of enrollment and 3 percent of graduates; Hispanics, 19 and 19 percent, respectively. (12) Comparable 1985-86 total minority enrollment percentages in dental hygiene programs were lower, nearly 3 percent Black and nearly 11 percent Hispanic. (12) As can be seen from Table 9, however, the proportions of minority participation within individual institutions vary widely.

One factor in these distributions of predominantly female, white enrollments in dental assisting and dental hygiene may be the gender, racial and ethnic distribution of practicing dentists in Florida, the future employers of these students. While current dental students reflect increasingly heterogeneous backgrounds, the total population of Florida dentists remain relatively homogeneous. (13) In a 1985 survey of licensed dentists, respondents (52 percent of Florida practitioners) were 91.5 percent white; 3.5 percent Hispanic; 3.1 percent Black; and 1.5 percent Asian. They were 94.4 percent male; nearly 50 percent were 45 years of age or older. It is impossible to know whether these proportions are true for nonrespondents, as well. If so, these demographic characteristics may explain, partially, the low male and minority enrollments in dental assisting and dental hygiene programs. Unless older, predominately white male dentists are willing to employ males and members of minority groups--and to encourage such individuals to pursue careers in dental assisting or dental hygiene--male and minority potential students will be unlikely to seek education in these disciplines. In addition, the dearth of role models who are male, or members of minority groups, may tend to perpetuate low participation.

Recommendation 13: The SBCC and DVACE should focus a substantial part of the coordinated recruitment program (recommendation 10) on demographic groups currently underrepresented in dental assisting and dental hygiene careers. Marketing efforts should include members of those groups targeted for increased enrollment in prominent, highly visible roles. Such individuals should serve on the steering committee that makes decisions regarding the program.

TABLE 9

MINORITY PARTICIPATION BY DENTAL ASSISTING AND DENTAL HYGIENE PROGRAMS COMMUNITY COLLEGES, FLORIDA, 1985-6*

	Number Insts.	Lowest Percent	Highest Percent	Median Percent
DENTAL ASSISTING	Max=9			
Black	6	4.3%	22.0%	7.5%
Asian	2	2.6%	4.3%	+
Am. Indian	--	--	--	--
Hispanic	4	2.6%	7.1%	3.3%
Alien	1	3.4%		+
Handicapped	3	2.4%	4.3%	4.3%
Male	1	6.3%		+
DENTAL HYGIENE	Max=8			
Black	7	1.3%	6.4%	2.2%
Asian	4	0.8%	2.1%	1.7%
Am. Indian	5	0.8%	2.1%	1.8%
Hispanic	8	1.8%	35.0%	2.9%
Alien	1	1.7%		+
Handicapped	2	2.5%	4.4%	+
Male	4	0.8%	4.4%	1.4%

* Source: (20)
+ Data are inadequate to calculate a median; only one or two institutions enroll the minority indicated.

RELATIONSHIP WITH THE PROFESSION

Much of the discussion in preceding sections has addressed specific aspects of the dental profession's relation to educational programs for dental assistants and dental hygienists. In fact, the issues considered (e.g., recruitment, certification, licensure, conditions of employment, advancement) and the various components of "the profession" are intertwined in complex ways.

The simplest--and most direct--interaction occurs at the individual program level. Accreditation standards for dental assisting (1) and for dental hygiene (6) require a defined, active mechanism to maintain liaison with the appropriate professional groups in the community. Most often, this ongoing liaison occurs within program advisory committees, containing representatives of various groups. Presumably, such mechanisms are operating satisfactorily, as no comment was received suggesting otherwise.

Considering the relationship of professional organizations to educational programs, individually and collectively, introduces another level of complexity, however. Component dental societies, as well as the Florida Dental Association, were well represented among those offering testimony at the public hearings. In contrast, formal testimony offered by dental assisting and dental hygiene organizations was extremely limited. The difference may reflect the resources available to the respective organizations; or the perceived potential impact of the review upon members of the organization; or the perceived ability to influence decisions and priorities of the Department of Education.

In any case, organized dentistry's view received substantial attention and this may be particularly appropriate, for several reasons. First, dentists employ nearly all graduates of dental assisting and dental hygiene programs in Florida. In addition, a longstanding, close relationship exists between organized dentistry and the Board of Dentistry of the Department of Professional Regulation, the agency that controls entry into, as well as conditions of practice, for dental assistants and dental hygienists. Finally, many of the recommendations in this report will require continued support, true cooperation, and compromise from all dental organizations, but especially from organized dentistry which, traditionally, has made most of the important decisions regarding dental assisting and dental hygiene.

Interestingly, many of the concerns related by individual dental assistants and dental hygienists during this review were remarkably similar to those enumerated by a Special Committee of the American Dental Association some six years ago. (23) The committee, composed primarily of dentists, had been convened during an economic downturn, when the "oversupply" of dental hygienists reportedly had resulted in widespread employment difficulties for dental hygienists. The issues and concerns addressed by the ADA Committee fell into four major areas: 1) interprofessional relations; 2) economic issues; 3) professional growth/career opportunities; and 4) delivery of care. Although the direction of some concerns has changed (from an oversupply, to an undersupply of dental hygienists, for example), many of the other issues remain as major concerns. Descriptions in that 1982 report parallel those given by dental assistants and dental hygienists who provided testimony

for this 1988 review. Concerns were similar and recommendations used similar language. Both emphasize the need for cooperative efforts, if lasting solutions are to be achieved.

Because recommendations appear in other sections in which the specific topic has been discussed, this section contains no additional recommendations.

CONTINUING EDUCATION

Perhaps because evidence of continuing education is required to maintain dental hygiene licensure in Florida (24 contact hours every two years), few who submitted testimony mentioned this area as a concern. The number of organizations and institutions that offer continuing education opportunities approved by the Board of Dentistry also contributes to the reason why so few identified continuing education as a concern. It appears that most--if not all--dental programs offer some formal courses for practitioners to maintain their skills.

An unknown number of existing continuing education courses include "hands on" instruction in clinical settings. It may be beneficial for educational programs to gather information from potential participants in such courses regarding interest in such skill-oriented opportunities. This needs analysis would be desirable, given that such courses prove more costly to offer, given the nature of instructional requirements. When the number of potential enrollees merits the effort, participatory courses should be offered as part of the continuing education repertoire of dental assisting and dental hygiene programs.

If recommendation 7 of this report, calling for standards for renewal of dental assistant expanded function and radiography certification, is adopted, a need may develop to examine the continuing education requirements of dental assistants. Special attention will need to be focused on continuing education for those dealing directly with ionizing radiation.

SUMMARY

From this review of dental assisting and dental hygiene education within Florida, several overall conclusions emerge. (More specific recommendations are enumerated in the body of this report.)

- Although anecdotal and limited evidence suggests that shortages of dental assistants and dental hygienists exist within Florida, reliable data characterizing important aspects of their employment are not available. As a consequence, intelligent planning for appropriate education of these dental personnel is virtually impossible. Development of a system to maintain data on dental assistants and dental hygienists within Florida should receive the highest priority.

- In its apparent shortages of dental assistants and slow growth of dental hygienists, dentistry in Florida is typical of dentistry in other parts of the United States.

- Problems in obtaining and retaining appropriately trained dental personnel appear to be centered in the profession, rather than primarily within the educational system. (For example, policies of the state licensing board restrict, rather than facilitate, the employment of those who move to Florida from elsewhere.) Of course, the educational system both is influenced by and affects conditions in the larger profession. This reciprocal relationship means that true solutions to problems must be broad-based, cooperative, and focused on the long-term, rather than designed to address acute needs.

- Less expensive, less complex solutions should be tried before the more expensive, far-reaching alternatives.

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(29) Council on Dental Education, American Dental Association. Annual Report, dental auxiliary education, 1987-88. April 1987, 45p.

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APPENDICES

A -- Consultants' Resumes

B -- Persons attending hearings, or submitting testimony (Including those representing organizations)

C -- Questionnaire, with cover letter, distributed to all dental hygiene and dental assisting program

APPENDIX A

Consultants' Resumes

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APPENDIX C

Questionnaire with Cover Letter

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June 16, 1988

Florida Program Directors,
Dental Assisting and Dental Hygiene

Dear Program Director:

Since we first spoke about the study of dental assisting and dental hygiene being conducted by the Florida Department of Education, much has occurred. The three consultants (Pete Zonakis, Lois Van Meter, and I) have listened to a variety of points of view, at the four public hearings. In addition, we have begun sifting through the information submitted, and analyzing data available to us.

As part of this analysis, we decided that the organized collection of information, opinions, and perceptions of dental assisting and dental hygiene program directors would be essential. Often, during the hearings, it was unclear whether the situations being described were unique, or whether they were common experiences, shared by many programs. Further, we heard conflicting perceptions of key past and current events.

Consequently, we have put together a questionnaire that asks for some factual information, and for some considered judgements, from each of you.

IT IS IMPORTANT THAT ALL PROGRAM DIRECTORS COMPLETE THE QUESTIONNAIRE, SO WE HAVE CONSISTENT DATA FROM ALL PROGRAMS!!!

Please provide the telephone number(s) at which you can be reached this summer, in case I need to clarify responses. I'd ask that you return the questionnaire promptly, to me--I will ensure that all information provided remains confidential, and is reported only for groups, not for particular programs. Thanks so much, for your help, and your interest in this review.

Sincerely,

Dolores M. Malvitz

School _____

Phone number (____)_____

Respondent: [ ] Program Director _____

[ ] Other _____

1. Educational Programs Offered:

[ ] DA Cert.

[ ] DA, AS [ ] DH [ ] DLT

2. Do plans exist to alter the number and/or kind of programs offered?

[ ] yes--provide details: [ ] no

3. Do plans exist to modify curricula and/or instructional strategies?

DA: [ ] yes--provide details: [ ] no

DH: [ ] yes--provide details: [ ] no

4. Consider the laboratory and clinical facilities as well as the various kinds of equipment available to the program(s). Do they meet your current needs?

[ ] yes [ ] no--What is lacking?

5. Are these facilities and equipment likely to meet your needs over the next 5-10 years, assuming that current enrollment ceilings continue?

[ ] yes [ ] no--What would be required?

6. Would your current clinical/laboratory facility accommodate an increase in enrollments?

[ ] yes--to what number? _____ [ ] no

7. Would your current clinical/laboratory facility accommodate expansion, for an enrollment increase?

[ ] yes--to what number? _____ [ ] no

8. Consider current faculty of the program(s).

FTE = _____

Does this number represent the full capacity you are allowed?

[ ] yes [ ] no

9. If the program were to expand enrollments as in preceding questions, what additional faculty FTE would be required?

_____ additional FTE, for a total of _____ FTE

10. Qualifications of current faculty (highest degree):

DDS _____ Masters _____ Bachelors _____ EF Cert ____
(number of faculty at each level)

11. Are there changes you'd like to see in faculty qualifications?

[ ] yes--what are they? [ ] no

12. How would you evaluate the adequacy of your current budget?

13. What are prospects for budget increases, to accommodate new program requirements (e.g., infection control)?

14. When does a new class begin? _____(month(s)

15. Maximum class size: DA:_____ DH: _____

16. Estimate how many inquiries are received, annually, about the program(s):

DA: _____ DH: _____

How many applications (application=formal completion of application forms and met all criteria for application) were received for the most recently admitted class?

DA: _____ DH: _____

Of these, how many were offered admission?

DA: _____ DH: _____

Of those offered admission, how many actually enrolled:

DA: _____ DH: _____

If class(es) was (were) not filled: In your view, what is the biggest problem...why have classes not been filled?

17. Do you have a recruitment effort for your program(s)?

[ ] yes [ ] no

Describe its magnitude and nature (Examples of efforts):

18. Estimate the hours/week (averages over the year) spent on student recruitment:

_____ hrs by faculty of program

_____ hrs by college personnel

_____ hrs by local dentists

19. Do you think that additional faculty effort could be invested in recruitment, without slighting teaching duties?

[ ] yes--how many hours? _____ [ ] no

20. Do you maintain an employment registry for graduates?

[ ] yes [ ] no

Recently, have you noted changes in the numbers and kinds of positions (e.g., PT/FT) or in the characteristics of positions (e.g., salaries, benefits) available to graduates?

[ ] yes--describe changes: [ ] no

21. Do you maintain data on program graduates, e.g., jobs, additional education:

[ ] yes--would you be willing to share? [ ] no

For what years' graduates do you have data?

22. How many inquiries regarding continued education toward the AS or BS do you receive per month?

_____

23. Is the pool of patients (both numbers and quality) adequate for the teaching needs of your program(s)?

[ ] yes [ ] no--what are deficiencies?

Could the patient pool accommodate an enrollment increase?

[ ] yes--to what number? _____ [ ] no

24. What linkage or articulation agreements exist, to permit graduates of the program(s) to enter degree completion programs with maximum academic credit for work completed? Describe any such arrangements that exist, please:

25. Does the program maintain articulation agreements for dental assistants to gain advanced standing in dental hygiene educational programs?

26. During the past several years, how have DH graduates performed on the DH National Board?

Year	# taking	% passing	mean score
1988	_____	_____	_____
1987	_____	_____	_____
1986	_____	_____	_____
1985	_____	_____	_____

27. During the past several years, how have these DH graduates performed on the State Board?

year	# taking	% passing
1988	_____	_____
1987	_____	_____
1986	_____	_____
1985	_____	_____

28. What concerns do you have that have not been addressed by this questionnaire?

29. What issues should receive priority, in examining DA/DH education in Florida?

30. Anything else we should know? (Use the back of this page, if necessary.)

THANK YOU!!! We appreciate your contributions to the success of this study!

When you have completed the questionnaire, please return to Dr. Dolores M. Malvitz, 1482 N. Crossing Circle, Atlanta 30329

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OCT 12 1990